

What is claimed is:

1. A housing cap for securing a dispenser pump to a reservoir comprising:
an annular body having a proximal end and a distal end,
the proximal end having an outwardly extending lip adapted to sealingly engage a portion of the reservoir,
the distal end having a protrusion for engaging the pump at a first location;
the annular body defining at least one notch for engaging the pump at a second location.
2. The housing cap of claim 1, wherein the lip is defined by a helical area protruding from the annular body.
3. The housing cap of claim 2, wherein the helical area protruding from the annular body defines a flange.
4. The housing cap of claim 1, wherein the outwardly extending lip further defines an annular flange.
5. The housing cap of claim 4, wherein the flange encloses at least a portion of the reservoir.
6. A housing cap for securing a dispenser pump to a reservoir comprising:
an annular body having a proximal end and a distal end,

the proximal end having an outwardly extending lip adapted to sealingly engage to a portion of the reservoir, the outwardly extending lip having an annular extension shaped to mate with the reservoir and terminating in a fin;

the distal end having a protrusion for engaging the pump at a first location;

the annular body defining an annular notch for engaging the pump at a second location and a recess spanning between the proximal and the distal ends.

7. The housing cap of claim 6, wherein the fin is shaped to enclose a portion of the dispensing pump.

8. The housing cap of claim 6, wherein the fin is shaped to be enclosed by a portion of the dispensing pump.

9. A dispenser assembly comprising:

a reservoir having an opening for fluid communication, the reservoir opening formed to receive a housing cap and a dispensing pump;

the housing cap having an outer surface in contact with the reservoir opening and an inner surface for engaging the pump, the outer surface defining a lip for engaging to the reservoir opening and a step for engaging a portion of the pump, the inner surface having a plurality of steps for engaging the pump,

the pump having a body and a dispenser portion, the body being engaged by the plurality of steps.

10. The dispenser assembly of claim 9, wherein the plurality of steps define a recess therebetween.
11. The dispenser assembly of claim 9, wherein the pump body further comprises a flange adapted to seat one of the plurality of steps.
12. The dispenser assembly of claim 9, further comprising a seal.
13. The dispenser assembly of claim 12, wherein the seal is disposed between the housing cap and the reservoir opening.
14. A bottle comprising:
 - a. a body;
 - b. thin walls being formed around the opening;
 - c. a thick section spaced below the opening and forming an undercut; and
 - d. a crimp surface formed on the outside of the neck.
15. The combination of a dispenser mounted on a bottle comprising:
 - a. a bottle having:
 - i. a body;
 - ii. a neck atop the body forming an inlet passage terminating in an opening;
 - iii. thin walls being formed around the opening; and
 - iv. a relatively thick section spaced some distance below the opening forming an undercut; and

- b. a dispenser having:
 - i. a body having an open outer end; and
 - ii. a plug inserted and retained in and projecting from the outer open end of said body,
- c. said housing inserted in and engaging the inside of the neck below the undercut, with the projecting portion of the plug engaging outer portion of the inside of the neck.

16. The combination according to claim 15 wherein said plug further comprises a housing cap with an upper tapered cylindrical area engaging an outer portion of the bottle opening and a lower part engaging the inside of the housing in the area where the housing is engaging the inside of the neck.

17. The combination according to claim 16 wherein lower part engaging the inside of the housing has a thickened bead-like cross-section engaging a recess in the inner surface of the housing .

18. The combination according to claim 16 wherein said plug terminates in an annular flange with a flat inner surface which engages a flat surface at the top of said opening.

19. The combination according to claim 16 wherein said dispenser is a pump comprising:
- a. a pump body having an inner end and an open outer end, and forming a cylinder;
 - b. a piston disposed for reciprocal movement in the cylinder;
 - c. a spring biasing the piston toward open outer end;
 - d. an inlet valve at the inner end of said cylinder,
 - e. a stem having a central bore for dispensing a fluid from said cylinder;
 - f. an outlet valve coupling the cylinder to the bore of the stem;

- g. an actuator disposed on said stem and in fluid communication therewith;
and
- h. a plug inserted and retained in and projecting from the outer open end of said pump body, said plug restraining outward movement of the piston.

20. A method for securing a dispensing pump within a bottle, comprising:
providing a bottle having a body, a neck atop the body forming an inlet passage terminating in an opening with thin walls formed around the opening and a relatively thick section spaced below the opening to form an undercut;
providing a plug adapted to engage a dispenser pump to the inlet passage of the bottle, the plug having an annular body with an inner surface and an outer surface, the inner surface having a plurality of steps;
engaging the plug onto the dispenser pump; and
mounting the plug and the dispenser pump on to the bottle to form a seal between the inlet passage of the bottle and a portion of the outer surface of the plug.
21. The method of claim 20, further comprising the step of interposing a flexible seal between the plug and the inlet passage of the bottle.
22. The method of claim 21, wherein the flexible seal is coupled to the pump to enable expansion of the seal after the pump is mounted to the bottle.
23. The method of claim 21, wherein the flexible seal defines an annular flange.